# 2. Chaoxiang

**(pronounced "shauw sheng")**

**Program Name: Chaoxiang.java** **Input File: chaoxiang.dat**

In science class, Chaoxiang is learning about Kelvin as it relates to Fahrenheit and has been taught two ways to convert from one to the other. He has decided to use his computer science skills and write a program, but still needs some help from you.

Write a program to input values from a file representing temperatures in Fahrenheit and express the equivalent value in the Kelvin temperature measuring system. This temperature scale was designed by Lord Kelvin (William Thomson, 1824-1907). Kelvin was a British inventor and scientist (he was born in Belfast, Northern Ireland in 1824).

The following chart represents three common temperatures in the three systems we use, with zero Kelvin representing the theoretical temperature called absolute zero, supposedly at which all molecular movement stops.

| | Kelvin | Celsius | Fahrenheit |
|---|---|---|---|
| Water boils | 373.16K | 100°C | 212°F |
| Water freezes | 273.16K | 0°C | 32°F |
| Absolute zero | 0K | -273.16°C | -459.68°F |

(http://www.enchantedlearning.com/chemistry/glossary/Kelvin.shtml ... For reference AFTER the contest)

There are two generally recognized formulas to do this, shown below. Both will produce the same output, and will produce the correct values for this program.

K = (y °F – 32) x 5/9 + 273.16
K = (y °F – 32) ÷ 1.8 + 273.16

**Input:** A data file containing several Fahrenheit values, each on one line.

**Output:** The equivalent Kelvin temperature measure, rounded and expressed to two places of precision.

**Sample input:**

```
212
32
-459.68
```

**Sample output:**

```
373.16
273.16
0.00
```